

**COMMONWEALTH OF VIRGINIA**  
Department of Environmental Quality  
Division of Water Quality Programs  
Ellen Gilinsky, Ph.D, Director

---

**Subject:** Guidance Memorandum No. 04-2021  
Guidance For Exceptional State Waters Designations In Antidegradation Policy Section of Virginia Water Quality Standards Regulation (9 VAC 25-260-30.A.3)

**To:** Regional Directors

**From:** Ellen Gilinsky, Ph.D., Director 

**Date:** November 15, 2004

**Copies:** Deputy Regional Directors, Regional Water Permit Managers, Regional Compliance & Enforcement Managers, Regional Water Compliance Managers, Rick Weeks, Alan Pollock, Jon van Soestbergen, Jean Gregory, Elleanore Daub, Alex Barron, David Whitehurst and Cindy Berndt

**Summary:**

The purpose of this guidance is to update and replace the Department of Environmental Quality's (DEQ) November 4, 1997 (revised April 25, 2001) "Guidance For Exceptional Surface Waters Designations In Antidegradation Policy Section of Virginia Water Quality Standards Regulation (9 VAC 25-260-30.A.3)." Amendments to the water quality standards regulation adopted by the State Water Control Board (the Board) at their March 25, 2003 meeting and Environmental Protection Agency (EPA) responses in 2002 to programmatic questions from DEQ make it necessary to update the guidance.

This document provides guidance on implementation of the exceptional surface waters (sometimes referred to as "Tier 3") section 9 VAC 25-260-30.A.3 of the antidegradation policy of the DEQ water quality standards regulation. This implementation guidance includes six elements: background on regulatory compliance with EPA Tier 3 requirements, restrictions on discharges, allowances for temporary lowering of water quality, activities not impacted, eligibility decision criteria, and the nomination and designation process.

For guidance on the DEQ implementation of the antidegradation policy for Tier 1 and Tier 2 surface waters where there are discharges permitted under the Virginia Pollutant Discharge Elimination System (VPDES) Program, please refer to the August 24, 2000 Department Guidance Memo No. 00-2011 "Guidance on Preparing VPDES Permit Limits."

Terms used in this guidance that pertain to discharges are defined in the VPDES permit regulation under Part I, 9 VAC 25-31-10, Definitions.

**Electronic Copy:**

An electronic of this guidance in PDF format is available for staff internally on DEQNET, and for the general public on DEQ's website at: <http://www.deq.virginia.gov/water/>.

**Contact information:** Questions about this Guidance Memorandum should be directed to Jean W. Gregory, Office of Water Quality Standards via e-mail [jwgregory@deq.virginia.gov](mailto:jwgregory@deq.virginia.gov) or by phone at 804-698-4113.

**Disclaimer:**

**This document is provided as guidance and, as such, sets forth standard operating procedures for the agency. However, it does not mandate any particular method nor does it prohibit any particular method for the analysis of data, establishment of a wasteload allocation, or establishment of a permit limit. If alternative proposals are made, such proposals should be reviewed and accepted or denied based on their technical adequacy and compliance with appropriate laws and regulations.**

## **1.0 BACKGROUND ON REGULATORY COMPLIANCE WITH EPA TIER 3 REQUIREMENTS**

### **1.1 EPA Requirements**

The Environmental Protection Agency's (EPA) Federal Water Quality Standards Regulation 40 CFR 131.12 requires every state to include, as a component of the state's water quality standards regulation, a three tiered approach to maintaining and protecting various levels of water quality. This includes a requirement that the states establish for special protection in the antidegradation policy section of the state water quality standards regulation a category of waters that is equivalent to Tier 3, Outstanding National Resources Water (ONRW). EPA defines ONRWs as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance.

According to EPA's 1991 Office of Water memorandum (USEPA, 1991) and 1994 guidance document, entitled Water Quality Standards Handbook (USEPA, 1994), ONRWs are maintained and protected by not allowing new or increased discharges to these waters. Appendix G: Questions and Answers on Antidegradation, of the Handbook provides additional guidance on ONRWs.

EPA retains approval/disapproval oversight but delegates to the states the election and designation of specific water bodies as ONRW equivalent waters. Although it is not a federal requirement for a state to designate any specific waterbody as ONRW equivalent water, each state must have in place in the water quality standards a process to designate a waterbody as an ONRW. Also, each state is required to establish procedures for implementation of this designation process.

### **1.2 Board Adoption of ONRW Equivalent Category**

The State Water Control Board (Board) adopted, effective May 20, 1992, water quality standards amendments which included a revised section of the antidegradation policy that established an Exceptional State Waters category whereby waters equivalent to EPA's Tier 3 ONRWs could be listed for protection and maintenance of their current exceptional status. In August 1992 EPA approved Virginia's Exceptional State Waters as being equivalent to ONRWs. Some minor changes to this section were adopted by the Board at their September 25, 1997 meeting in response to suggestions made by the EPA during their triennial review of the water quality standards regulation. The regulation was also amended to comply with Code of Virginia § 62.1-44.15:4(B) notification requirements for potentially impacted localities and riparian landowners. At their March 25, 2003 meeting, the Board adopted EPA's required changes to remove references to language that restricted the implementation of the antidegradation policy to Board activities in order to assure that all activities - and not just those regulated by the Board - are considered when applying the antidegradation policy.

## **2.0 DISCHARGE RESTRICTIONS**

The intent of the designation is to maintain the water body at its current quality and to protect it from any future degradation so it will be preserved at its present quality for the enjoyment of future generations. Exceptional State Waters are intended to be permanent designations. Once a water is designated an Exceptional State Water, removal of the designation would require amending the Standards regulation, requiring EPA approval. The protection afforded by these regulatory designations is intended to go beyond the normal protection from pollution contaminants provided by the Department of Environmental Quality's (DEQ) numerical and narrative water quality criteria.

Upon regulatory designation of a water body as an Exceptional State Water, the quality of the water shall be maintained and protected via 9 VAC 25-260-30.A.3 (2)b.(1) by not allowing any degradation except on a very short-term basis. Requirements established for sources discharging directly into Exceptional State Waters are different than those for indirect sources that are located upstream or on a tributary of the Exceptional State Waters segment.

These regulatory restrictions on point source discharges to Exceptional State Waters are enforced through Virginia Pollution Discharge Elimination System (VPDES) permits issued by DEQ, Department of Conservation and Recreation, or Department of Mines, Minerals, and Energy.

## **2.1 Direct Point Sources to Exceptional State Waters**

**2.1.1 Allow Existing Discharges but Prohibit Expansions.** Only existing VPDES point sources would be allowed to continue to discharge to Exceptional State Waters. Expansions to existing point sources are prohibited.

**2.1.2 Prohibit New or Expanded Point Source Discharges.** EPA's national interpretation with respect to the ONRW provision of the antidegradation policy is that no new or increased discharges are allowed. Therefore, after the effective date of an Exceptional State Waters designation, no permanent new or expanded point source discharges are allowed directly to the segment designated as an Exceptional State Waters. This applies to new point sources, expansion of existing sources in which treatment levels are maintained, and expansion of existing sources in which treatment levels are increased to maintain existing pollutant loading levels. Regardless of effluent quality, any new or expanded direct source is prohibited. For example, DEQ would be prohibited by the regulation from issuing a VPDES permit for any new industrial or municipal discharge, including filter backwash discharge from a new water treatment plant, as well as for any increase of an existing industrial or municipal discharge. Facilities that now discharge as a point source, even if a permit is not required now for the discharge, would be prohibited from receiving a permit for a new or increased discharge. This regulatory prohibition on new and increased discharges to Exceptional State Waters includes permanent permitted storm water discharges such as MS4 storm water discharge permits for Virginia Department of Transportation and VPDES general permits for sewage discharges less than 1,000 gallons per day such as for single family homes.

**2.1.3 Continuation of Permit Issuance until Effective Date of Designation.** Surface waters will be subject to Exceptional State Waters protection requirements (§ 9 VAC 25-260-30.A.3.b and 9 VAC 25-260-20.B.11.a) only where an Exceptional State Waters designation has been assigned by the Board through the state rulemaking procedures (Administrative Process Act) and DEQ Public Participation Guidelines and EPA has reviewed and approved the amendment. Therefore, permits may be issued during the rulemaking process prior to the effective date of the amendment. However, after the effective date of the Exceptional State Waters designation, no VPDES permits for new or expanded point source discharges of effluent (except for the case by case decisions regarding short term discharges described in the next section) shall be issued for the designated section or waterbody. If the permit for a new or expanded discharge is issued before the effective date of an Exceptional State Waters designation, the permit would be considered an existing permit -even if the facility had not yet been constructed- and the facility would be allowed to discharge up to the design flow limit included in the permit. A discharger may discharge up to the permitted design flow which was in effect on the date the Exceptional State Waters designation becomes effective, even if the discharger was not discharging at its permitted design.

**2.1.4 Point Sources Upstream or Tributary to Exceptional State Waters.** New or expanded point source discharges are allowed to waters upstream or on a tributary to Exceptional State Waters as long as the mixing zone for the discharge does not extend into the segment (because Section 9 VAC 25-260-20.B.11.a prohibits new or expanded mixing zones in waters listed in Section 9 VAC 25-260-30.A.3.c). This requirement ensures that new or expanded point sources to waters upstream or on a tributary to exceptional waters do not result in a lowering of water quality in the Exceptional State Waters segment. The applicant may be required to provide information sufficient to evaluate the potential effects of the proposed activity on downstream exceptional waters. The information that will be required in a given situation will be identified on a case-by-case basis by DEQ staff. For example, the upstream discharger may be asked to provide an estimate of the size of their mixing zone, the loadings and types of pollutants present and the volume of flow expected from their discharge.

**2.1.5 Mixing Zones.** Section 9 VAC 25-260-20.B.11.a of the water quality standards regulation prohibits new or expanded mixing zones in exceptional waters segments. Regulatory requirements for the sizing of mixing zones can be found at 9 VAC 25-260-20.B.

## **3.0 ALLOWANCES FOR TEMPORARY LOWERING OF WATER QUALITY**

Activities that would result in a temporary and limited effect on the water quality of an Exceptional State Water may be authorized on a case-by-case basis (§9 VAC 25-260-30.A.3.b.3). The decision regarding whether effects will be temporary and limited is based on the following factors: (a) length of time during which water quality will be lowered, (b) likelihood for long-term water quality benefits to the segment (e.g., as may result from dredging of contaminated sediments), (c) degree to which achieving applicable water quality standards during the proposed activity may be at risk, and (d) potential for any residual long-term influences on existing uses.

The intent of this provision is to limit water quality changes to the shortest possible time. For example, if a construction activity is involved, temporary is defined as the length of time necessary to construct the facility and make it operational. Examples of temporary activities include construction, installation, maintenance, replacement and /or repair of roads, bridges, boat ramps or docks, sea walls, outfall or intake structures, and dams.

According to EPA short term and temporary activities are of a limited duration while permanent engineered structures have a designed life span (USEPA Memo, May 22, 2002).

Construction activities of one acre or greater are required to have a VPDES storm water permit, but this is considered a temporary activity which could be allowed on a case by case basis under the temporary discharge provisions of the Exceptional State Waters regulation.

Activities in ONRWs can be permitted under the Army Corps of Engineers "Nationwide Permit" 404 Program (NWP) program and individual DEQ Water Protection Permits upon notification to the District Engineer, if the District Engineer determines that the impacts to critical waters are no more than minimal (33 CFR 330.C.25). This allowance on a case by case basis for activities that would result in a temporary and limited effect on the water quality of an ONRW equivalent water is consistent with DEQ current antidegradation policy in the Water Quality Standards regulation (§9 VAC 25-260-30.A.3.b. (3)) and with current DEQ Tier 3 implementation guidance for temporary activities. Note that Virginia Water Protection Permits (VWPP) do not have any type of exclusion for ONRWs that would not allow their use.

#### **4.0 ACTIVITIES NOT IMPACTED BY TIER III DESIGNATION**

##### **4.1 Unimpacted Permit Categories**

Virginia Pollution Abatement (VPA) permits cover management of pollutants that do not result in a point source discharge to state waters; therefore VPA permits can be issued within areas designated as Exceptional State Waters. Reservoir releases for low flow augmentation within an Exceptional State Water body are also allowed.

##### **4.2 Non-point Source Activities**

Federal regulation does not mandate that states establish control of non-point sources in ONRWs or their equivalent Exceptional State Waters. EPA has stated that the Clean Water Act does not provide direct regulatory authority over non-point sources and that non-point source control would rely on a voluntary program to achieve the Tier 3 standards. Therefore, EPA does not require a State to establish Best Management Practices (BMPs) for nonpoint sources where such BMP requirements do not exist. While cost-effective and reasonable best management practices are encouraged for nonpoint source control, the implementation of Exceptional State Water requirements will not impose additional best management practices on any previously non-regulated activity. For example, federal antidegradation regulations do not restrict the practice of water withdrawal for irrigation or instream watering of livestock, do not require the installation of fences along the designated segment, and do not impact forest management activities such as timber sales, prescribed burning, road management, developed and dispersed recreation and mechanical dosing systems or other types of limestone mitigation of acidified streams.

##### **4.3 Riparian Landowner Restrictions Limited to Point Source Discharges**

During the public participatory process, private riparian landowners often express concern that the impact of an Exceptional State Waters designation will extend beyond a prohibition on new or increased point source discharges. However, these concerns are unwarranted. For example, the Board does not have jurisdiction over property rights and an Exceptional State Waters designation do not allow for public access to the designated segment through private property. An Exceptional State Waters designation does not give the state the authority via the designation to acquire land through eminent domain. Designation does not interfere with property rights.

As long as the Exceptional State Waters designation remains in place, all riparian landowners along that waterbody will be required to comply with the restrictions of the regulation. However, if the regulatory requirements for designating a waterbody or regulatory restrictions on such a water change, then the Board would re-evaluate the current designations for compatibility with the regulatory changes and possibly initiate a de-regulation of that waterbody. Any such amendments would require public participation and EPA review and approval.

## **5.0 ELIGIBILITY DECISION CRITERIA FOR EXCEPTIONAL STATE WATERS**

Section 9 VAC 25-260-30.A.3 of the antidegradation policy establishes the criteria which candidate water bodies must meet to be designated as Exceptional State Waters. This section of the water quality standards regulation provides the authority for the Board to classify certain unique and special surface waters of the Commonwealth as Exceptional State Waters upon finding that such waters have exceptional recreational **or** aquatic community significance **and** that the waters have exceptional environmental settings.

The following factors are to be considered in determining whether a nominated water body meets the eligibility decision criteria.

### **5.1 Exceptional Environmental Settings**

The purpose of this category is to list those features which singly or in combination make a water body physically attractive. In order to meet the mandatory requirement that a water body nominated for Exceptional State Waters status provide an exceptional environmental setting, one or more of the following factors must apply:

- 1) the water possesses outstanding scenic beauty resulting from the natural features of the basin such as its topography, geology, ecology or physiography, or
- 2) the water has already received designation as a national wild and scenic river, or
- 3) the water represents an important component of a state or national park, forest, or wildlife refuge, or
- 4) the water includes remote, primitive or relatively undeveloped areas with public access by motorized vehicle restricted or unavailable.

In addition to providing an exceptional environmental setting, the candidate water body must either contain exceptional aquatic communities or exhibit exceptional recreational opportunities.

### **5.2 Exceptional Aquatic Communities**

In order to demonstrate that a water body nominated for Exceptional State Waters status contains an exceptional aquatic community, one or more of the following factors must apply:

- 1) the water supports an exceptional wild or natural fishery, or
- 2) the waters are designated as Class I or Class II wild natural trout streams according to the Virginia Department of Game and Inland Fisheries classification system (which is also referenced in DEQ's 9 VAC 25-260-370.B and 9 VAC 25-260-390 et seq.), or
- 3) the water contains an exceptional high diversity of aquatic species (fish or benthic macroinvertebrate) as categorized by the appropriate protocol for that water body type and species, such as the 95th percentile of the EPA's Rapid Bioassessment Protocol II method for measuring macroinvertebrate diversity in streams (Plafkin et. al., 1989) or the 95<sup>th</sup> percentile of biological metrics provided in more recent EPA bioassessment technical support guidance documents for wadeable streams and rivers (Barbour et. al., 1999), lakes and reservoirs (Gerritsen et. al., 1998) and estuarine and coastal marine waters (Bowman et. al., 2000).

### **5.3 Exceptional Recreational Opportunities**

In order to demonstrate that a water body nominated for Exceptional State Waters status exhibits exceptional recreational opportunities, the water must support recreational activities which do not require modification of the existing natural setting such as: fishing, canoeing, rafting, kayaking, tubing, birding, hiking, backpacking with Primitive camping, or the like.

## 6.0 NOMINATION AND DESIGNATION PROCESS

### 6.1 Nomination Process

**6.1.1 Public Petition Submittals.** Any person may petition DEQ per §2.2-4007 of the Code of Virginia, also known as the Administrative Process Act (APA), to request the regulatory designation of a surface water as an Exceptional State Water under 9 VAC 25-260-30.A.3.c. The APA requires the Board to consider and respond to the petition within 150 days (Figure 1). Petitions requesting the regulatory designation of a surface water or portions of a surface water body as an Exceptional State Water may be submitted to DEQ at any time by sending a written request (with two additional copies if practicable) to the following mailing address: Jean W. Gregory, Department of Environmental Quality, P. O. Box 10009, Richmond, Virginia 23240-0009. If the submission is shipped by a carrier other than the US Postal Service, delivery should be made to the DEQ street address at 629 East Main Street, Richmond, Virginia 23219.

The petitioner shall provide all information required by section 9 VAC 25-10-20 C of the DEQ Public Participation Guidelines, which includes:

1. Name of petitioner;
2. Petitioner's mailing address and telephone number;
3. Petitioner's interest in the proposed action;
4. Recommended regulation or addition, deletion or amendment to a specific regulation or regulations;
5. Statement of need and justification for the proposed action;
6. Statement of impact on the petitioner and other affected persons; and
7. Supporting documents, as applicable.

The petitioner shall also include the following information in the nomination:

1. The name of the water body or segment proposed for designation,
2. Written description of the upstream and downstream boundaries of the water proposed for designation and an accompanying map (preferably a photocopy of a United States Geological Survey 7.5 minute topographic map or its equivalent such as a printed copy of an electronic topographic map) which delineates these boundaries,
3. Written documentation of the eligibility of the water under the criteria specified in 9 VAC 25-260-30.A.3 and described within this document (a documented rationale as to why the water qualifies for the re-categorization) plus additional supporting information that DEQ may request from the petitioner, and
4. Information on whether there are 303(d) listed waters in the nominated waterbody. If the nominated water body (or some portion of the nominated water) is a 303(d) listed water, additional information is required from the petitioner on why the waterbody qualifies for designation. If there are no 303(d) waters in the nominated waterbody, then no additional information is required.

Potential sources of information to support a nomination can be found at local libraries (for background and recreational information), Department of Game and Inland Fisheries, United States Forest Service, United States national Park Service, (for fishery and recreational information), Department of Conservation and Recreation (for recreational parks and scenic setting information,) canoe, boating, bird watching, nature and camping organizations (for recreational information), Department of Environmental Quality (for water quality information and benthic aquatic community information), newspaper or journal articles. Photographs also help to support a nomination.

**6.1.2 DEQ Identification of Candidate Waters.** DEQ may propose to recategorize certain surface waters to Exceptional State Waters. If DEQ proposes to re-categorize these waters, staff shall provide the documentation requirements of the regulation to the Board for consideration to initiate a rulemaking.

## **6.2 Board Review of Nominations**

The Board processes all Exceptional State Waters nominations as petitions pursuant to the APA. This means that any citizen may petition the Board at any time to consider an Exceptional State Waters nomination and the Board must respond to this petition within 150 days.

The Board, not the DEQ staff, is the official recipient of the petitions and State initiated nominations. Upon receipt of a petition nominating a waterway or segment of a waterway for designation as an Exceptional State Water, the Board's staff will make an initial completeness review. Once the petition is determined complete, the Board will officially receive the petition at the next scheduled Board meeting. At that time staff will advise the Board if the water body is a 303(d) listed water, the nature of the impairment, and information provided by the petitioner on why the 303(d) listed waterbody qualifies for designation. An incomplete petition shall be denied and returned to the nominator with an indication of the deficiencies. Resubmittal of a nomination shall be deemed a new nomination.

## **6.3 Code Required Notification of Potentially Impacted Localities and Riparian Property Owners**

The Board is required by the APA (§ 2.2-4007.A) to publish in the Virginia Register a general public 21-day opportunity for comment on any citizen petition. This notice is issued for those nominations that are deemed complete by the Board.

In addition, the Virginia State Code requires the Board, upon receipt of a complete Exceptional State Waters nomination and before taking any regulatory action on the nomination, to notify each locality in which the waterway or segment lies of the nomination and to provide the locality sixty days in which to comment on the consistency of the nomination with the locality's comprehensive plan. The comment period established by § 62.1-44.14:4.B of the Code of Virginia shall in no way impact a locality's ability to comment during any additional comment periods established by the Board. In addition, the Code requires the Board to make a good faith effort to provide notice to impacted riparian property owners and specifies that the DEQ request the names and addresses of impacted riparian landowners from the local Commissioner of Revenue or tax assessor's office. For the purposes of this regulation "riparian property owners" are owners whose land abuts (i.e., is located adjacent to the banks of) the designated water body or area.

The written notice shall include, at a minimum: (i) a description of the location of the waterway or segment; (ii) the procedures and criteria for designation as well as the impact of designation; (iii) the name of the person making the nomination; and (iv) the name of a contact person at DEQ who is knowledgeable about the nomination and the waterway or segment. The DEQ has elected to provide this written notice by first class mail in the form of a letter. A list shall be retained in the nomination file of the names and addresses of all localities and riparian property owners notified.

At the time of written notification to localities and riparian property owners, the DEQ will send a copy of the petition to the local library and additional copies for viewing will be available in the DEQ regional office in which the nominated water body is located and the central office of the DEQ.

It is DEQ's policy for staff to participate in local or public forums regarding the Exceptional State Waters program if their presence is requested. DEQ does not schedule public meetings or hearings until the Board has authorized them to initiate a rulemaking. At this pre-rulemaking stage, the procedure is to notify and solicit written comment from potentially impacted localities and riparian landowners as required by State law.

During this time period, DEQ staff will make a site visit to verify the eligibility of the nominated water body.

The Director or his designee will summarize all comments received from the localities and impacted property owners in a report to the Board for their consideration before they decide at their quarterly meeting whether to initiate a Notice of Intended Regulatory Action (NOIRA). The Director will ensure that copies of the NOIRA are sent to the petitioner, localities and riparian property owners, or will inform the petitioner that the waters do not meet the criteria for Exceptional State Waters with an explanation for the basis for this decision. This Board determination shall be made within 150 days of official receipt of the petition (Figure 1).

#### **6.4 Regulatory Designation Process**

If the Board decides at the end of the 150-day period to approve initiation of rulemaking process, there will be additional opportunity for comment during public meeting (Notice of Intended Regulatory Action) and public hearing (Notice of Public Comment) comment periods. These opportunities for public comment are public noticed in local and regional newspapers. For the convenience of the citizens, the meetings and hearings are held at a location near the water body proposed for designation. The public comments, both written and oral, are reviewed by the Board before they take any final regulatory action.

The Board is solely responsible for designating eligible waters for inclusion in 9 VAC 25-260-30.A.3.c as Exceptional State Waters. In determining whether to designate a water in 9 VAC 25-260-30.A.3.c, the Board evaluates the surface water according to:

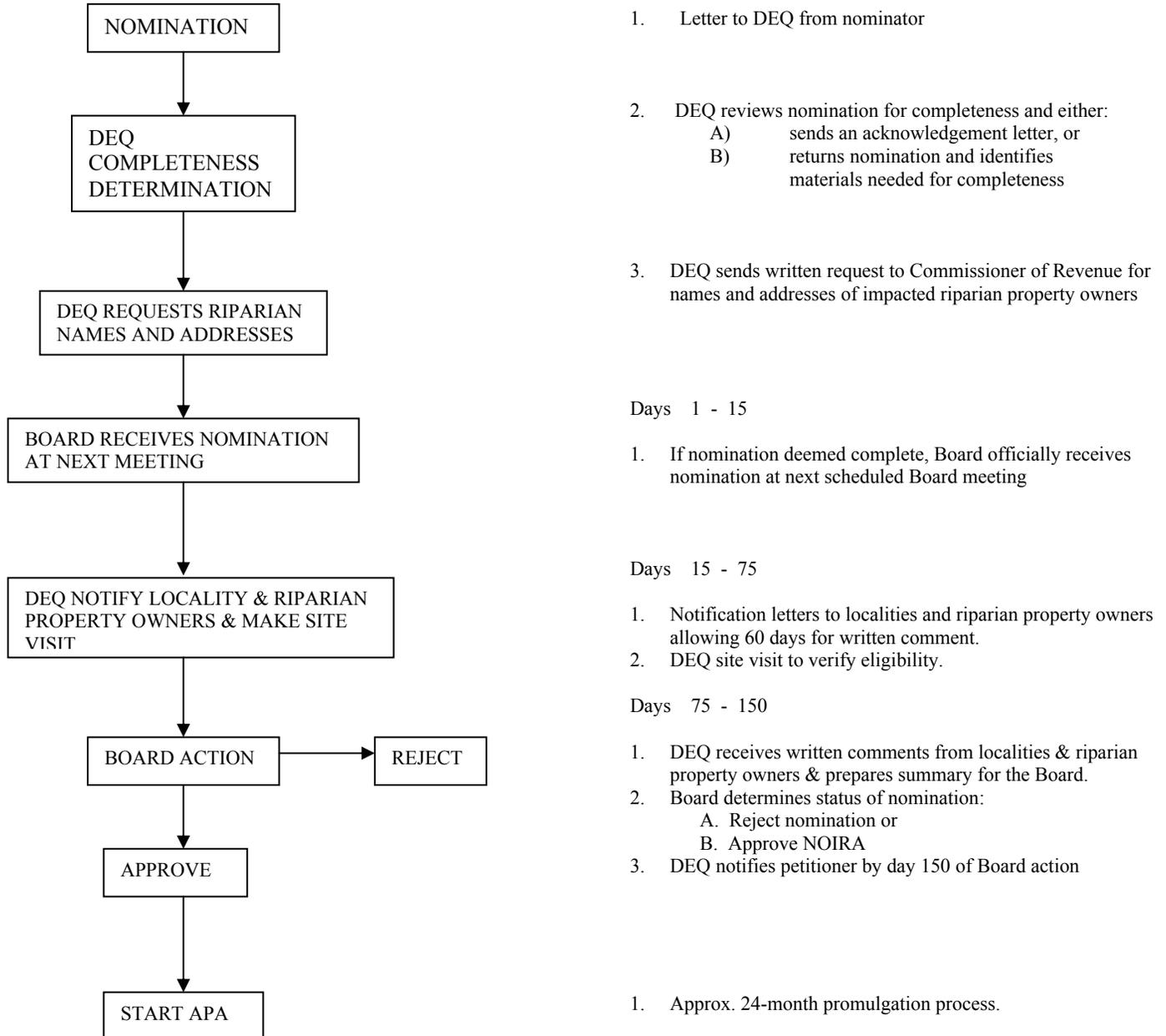
1. the eligibility criteria set out in Section 9 VAC 25-260-30.A.3 of the water quality standards regulation,
2. responses from notifications sent to each locality in which the waterway or segment lies and to potentially impacted riparian property owners (per § 62.1-44.15:4.B notification requirements of the Code of Virginia), and
3. public comments received during the public participation process.

There are no specific weighting factors given to riparian landowner comments.

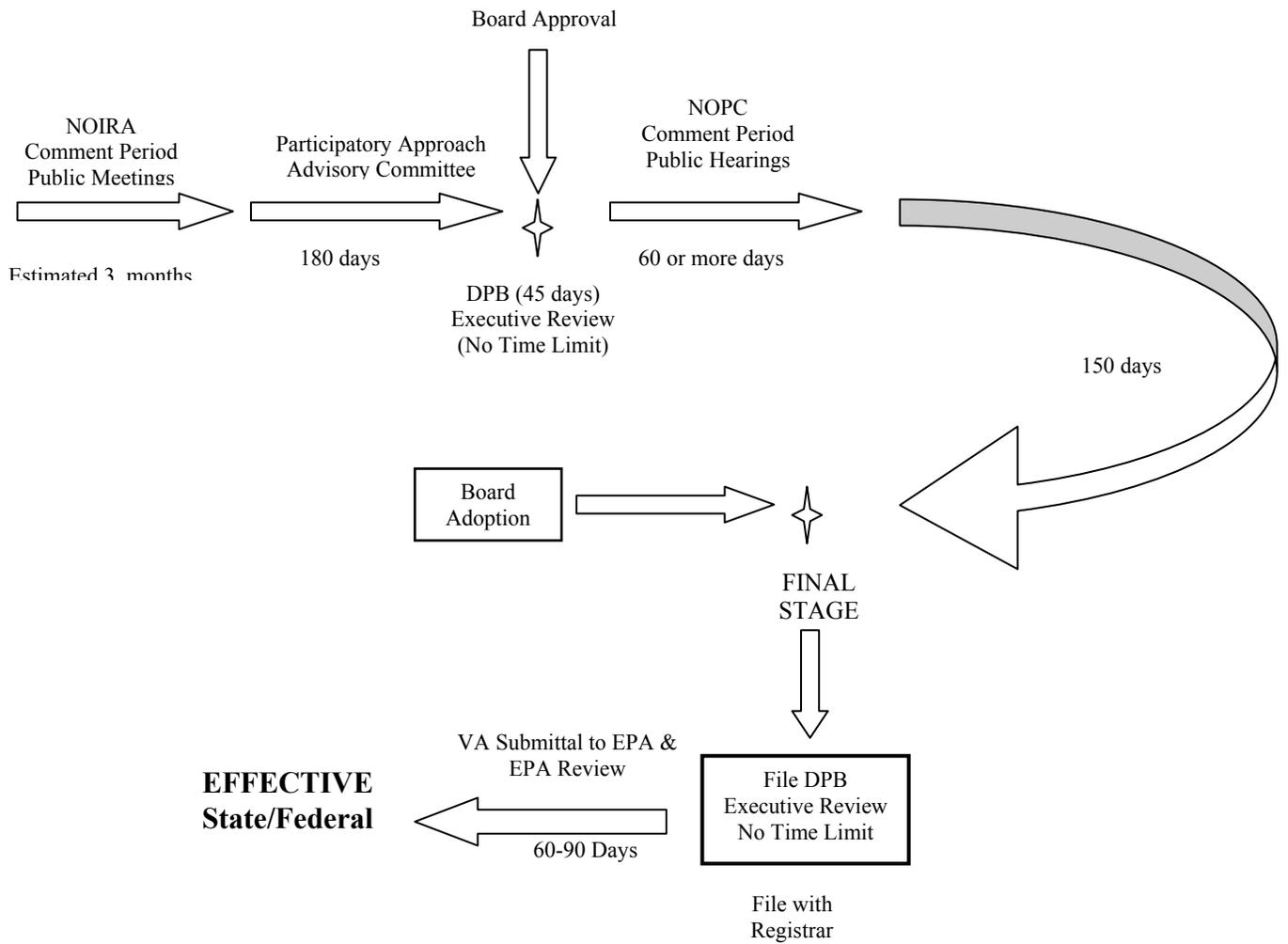
The designation of an Exceptional State Water is treated as a regulatory amendment to the water quality standards and is adopted by the Board in accordance with the provisions of the APA and the DEQ Public Participation Guidelines. The designation, once effective, would be listed in 9 VAC 25-260-30.A.3.c.

The state rulemaking process normally takes about two years (Figure 2) and includes an economic review by the Department of Planning and Budget (DPB) and two opportunities for public comment - the Notice of Intended Regulatory Action (NOIRA) and Notice of Public Comment (NOPC). After state approval, the amendment is submitted to EPA for a 90-day review and ultimate approval or disapproval of the amendment. The amendment would not be effective for Clean Water Act actions in Virginia until it is approved by EPA.

**Figure 1. 150 Day Timeline for Board Evaluation of Exceptional State Waters Petitions and Notification to Localities and Riparian Property Owners**



**Figure 2. Rulemaking Timeline – Virginia**



## REFERENCES

- Barbour, M.T., J. Gerritsen, B.D. Snyder, and J.B. Stribling. 1999. Rapid Bioassessment Protocols for Use in Wadeable Streams and Rivers: Periphyton, Benthic Macroinvertebrates, and Fish. Second Edition. EPA 841-B-99-002. U.S. Environmental Protection Agency; Office of Water; Washington, D.C.  
<http://www.epa.gov/owow/monitoring/rbp/>
- Bowman, Michael L., George R. Gibson, Jr., Jeroen Gerritsen, and Blaine d. Synder. 2000. Estuarine and Coastal Marine Waters: Bioassessment and Biocriteria Technical Guidance. EPA-822-B-00-024. United States Environmental Protection Agency; Office of Water; Washington, D.C.  
<http://www.epa.gov/ost/biocriteria/States/estuaries/estuaries1.html>
- Gerritsen, Jeroen, Robert E. Carlson, Donald L. Dycus, Chris Faulkner, George R. Gibson, John Harcum, and S. Abby Markowitz. 1998. Lake and Reservoir Bioassessment and Biocriteria, Technical Guidance Document, EPA 841-B-98-007. United States Environmental Protection Agency; Office of Water; Washington, D.C.  
(<http://www.epa.gov/owow/monitoring/tech/lakes.html> )
- Plafkin, James L. , Michael T. Barbour, Kimberly D. Porter, Sharon K. Gross and Robert M. Hughes. 1989. Rapid Bioassessment Protocols For Use in Streams and Rivers: Benthic Macroinvertebrates and Fish. EPA/444/4-89-001. United States Environmental Protection Agency; Office of Water; Washington, D.C.
- United States Department of Defense, Corps of Engineers, Department of the Army 1996. Nationwide Permit Program Regulations and Federal Register, December 13, 1996. 33 Code of Federal Regulations 330.C.25.
- United States Environmental Protection Agency. 1991. Office of Water Programs. June 13, 1991 Memorandum to Region III on Antidegradation Policy: ONRW. Washington, D.C.  
<http://www.epa.gov/waterscience/library/wqstandards/antideg3.pdf>
- \_\_\_\_\_. 1994. Water Quality Standards Handbook. Second Edition. Chapter 4: Antidegradation and Appendix G: Questions and Answers on Antidegradation. EPA-823-B-94-005. Office of Water. Washington, D.C.  
<http://www.epa.gov/waterscience/standards/handbook>
- \_\_\_\_\_. 2002. EPA Region III Office of Watersheds, VA/WVA Branch. May 22, 2002. Letter from Thomas Henry to Alan Pollock